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Office Memorandum • UNITED STATES GOVERNMENT

TO : The Files

DATE: 23 November 1953

FROM : **CONFIDENTIAL**

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SUBJECT: Test and Evaluation of the Facsimile Cyphering Equipment,
Second Progress Report

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1. This is the second progress report covering the subject tests. The enclosed report covers the tests prior to 30 July 1953.

2. During the period 30 July to date, the subject tests have been progressing satisfactorily. The attached copy is characteristic of the results obtainable:

3. In fairness to the capabilities of the subject equipment, deterioration observed in the above copy should not be attributed entirely to that introduced by the equipment. Consideration should also be given to the maximum resolving ability of the facsimile equipment in use. A delay constant of approximately one millisecond has been introduced by the system. Variations in this one millisecond delay caused by quantization distortion represents the major deterioration in the decyphered copy.

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4. Troubles experienced during the reported period have been routine. Troubles inherent in the present design such as poor plate supply regulation, susceptibility to line voltage fluctuations, and poor component selection, have been anticipated in the current design model now being tested at NSA.

5. Future plans for the tests includes setting up the page printing equipment between Room 11, 350 26th Street and Room 1416 "M" Building. The equipment has been operating on a tentative test basis at

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Enclosure: Memo for the File covering subject tests prior to 30 July 1953.

C O P Y

The Files [REDACTED]

30 July 1953

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[REDACTED]

Test and evaluation of [REDACTED] Facsimile Cyphering equipment,
progress report concerning

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REFER: Ltr from AD/OC to AD/OCD dtd 21 January 1953

1. Reference established the authority and outlined procedures for the conduct of subject tests.

2. In compliance with provisions contained in the reference, [REDACTED] of R&D was assigned to NSA for training in connection with the subject tests on 15 April 1953. Arrangements concerning operating personnel, space, and security requirements in "M" building and 350 26th St., were made with [REDACTED] Chief, Machine Division, OCD, and coordinated with [REDACTED] Chief, Security Division, OC.

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3. On 11 June 1953 the writer was informed by [REDACTED] of NSA that [REDACTED] had completed his training and that the equipment would be delivered within two weeks. On 18 June, the writer, in company with [REDACTED] of OC-S, surveyed the installation areas in "M" building and 350 26th Street. At that time the following list of names of OCD operating personnel was submitted for cryptographic clearances:

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A.
B.
C.
D.
E.
F.
G.
H.

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4. On 23 June 1953 the equipment was delivered by NSA transport under armed guard: one terminal to room 11, 350 26th Street, and one terminal to room 1416 "M" building. Arrangements were completed for using the secure cable installation between the two buildings. [REDACTED]

[REDACTED] from NSA, and [REDACTED] of CIA proceeded to install the equipment. The associated cryptographic aids were delivered to [REDACTED] office a few days later.

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5. From 23 June to the present date, the equipment has been subject to considerable and varied failures. A close log is being maintained for both terminals. The lack of facilities offered in side-by-side operation has lengthened trouble-shooting time. A few of the difficulties experienced to date follow:

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Subject: Test and evaluation of [redacted] Facsimile Cyphering equipment,
Progress report concerning (Cont'd)

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- A. Low AC line voltages at both terminals. The condition was so poor in room 11, 350 26th Street, that a Sorensen AC regulator had to be inserted.
- B. Random noise level on the privacy line was sufficiently high to necessitate filters.
- C. Vacuum tube replacement rate high, probably caused by low AC line voltage at both terminals. NSA is operating with approximately 128 volts AC available. AC line voltage in room 11, 350 26th St., was 108 volts, and 1416 "M" building it varied between 112 and 115 volts.
- D. Filament transformer failure, caused by faulty transformer construction. Terminal board insulator tends to carbonize at high temperatures presenting a high resistance short.

7. On 29 July the writer was contacted by [redacted] of OC-S concerning the cryptographic check-out for the personnel listed in paragraph 3 above. A lecture covering the operating procedures was given by [redacted] of NSA at 350 26th Street, Thursday, 30 July, at 10:00. STAT
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8. With respect to future plans for the subject tests, the writer expects the tests to continue for at least sixty days during which time sufficient information should become available concerning the applications and limitations of the equipment to satisfy NSA and CIA. Besides testing the subject equipment in conjunction with OCD Intellofax System, it is planned to test the subject equipment in conjunction with the [redacted] medium speed page size facsimile equipment. The [redacted] equipment is due to be delivered to the Agency around 1 August. 50X1
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9. The writer expects to continue to monitor the subject tests and to make progress reports for the file on a monthly basis.

10. The writer has requested policy decision on the conduct, status and priority of the projected tests involving the [redacted] facsimile equipment. [redacted] engineers have volunteered to visit the Agency to assist in setting up the facsimile equipment. The engineers involved have been cleared by the Agency for work through Secret. NSA engineers have agreed to assist in coordinating the tests. 50X1
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